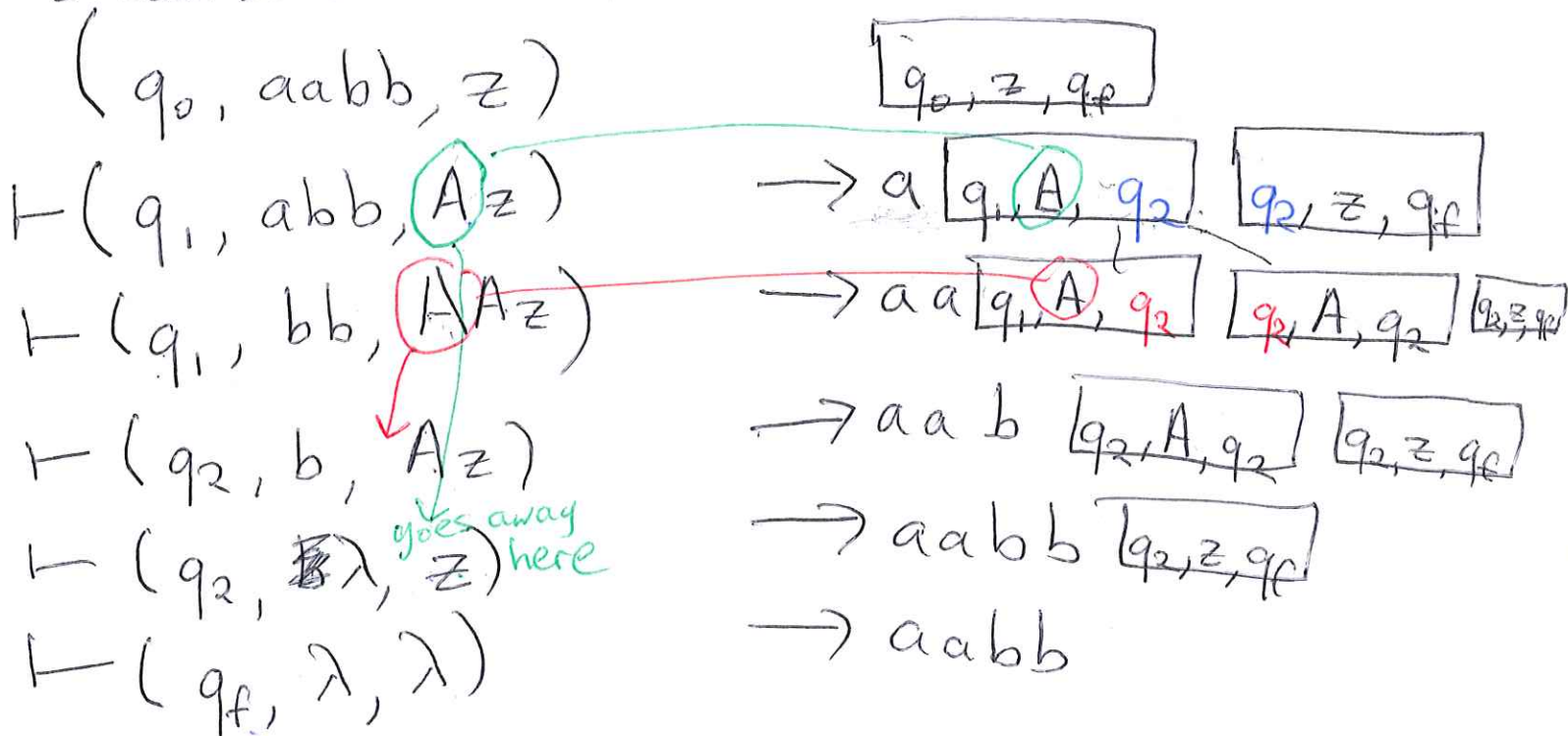


I still need to show you that this construction actually does what it is supposed to do.

E.g. Some string accepted by the PDA

$w = aabb$

Instantaneous descr.



This "proves" (to do it properly I should do it abstractly for every sequence of instantaneous descriptions) that every string accepted by the PDA is generated by the grammar.

I should now show you why every derivation in the grammar corresponds to a ~~seq~~ valid sequence of instant. descr. for the PDA.

- ① Make sure we use a leftmost derivation
- ② The transitions we use at any given point is just the transition corresponding to the production (we don't have a choice - there is only one)

Deterministic PDAs

A PDA is deterministic if

~~is~~

① We do not have ~~two different~~ transitions

$$(q, l, s) \rightarrow (q', t')$$

$$(q, l, s) \rightarrow (q'', t'')$$

(where $q' \neq q''$ or $t' \neq t''$)

the state we're at,

Intuitively - given the first letter remaining on the string and the top of the stack, we have at most one choice.

and - (we want λ -transitions so we can do stack stuff w/o eating string) but we don't want a choice btw a λ -transition and a string eating one.

② We do not have transitions

$$(q, \lambda, s) \rightarrow (q', t')$$

$$(q, l, s) \rightarrow (q'', t'') \quad (\text{where } l \neq \lambda)$$